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www.state.in.us/idem

VIA CERTIFIED MAIL 7000 0600 0026 4647 3074

March 1, 2002

Mr. Matthew A. Love
Director, Environmental Affairs
Exide Technologies
3000 Montrose Avenue
Reading, Pennsylvania 19605

Dear Mr. Love:

Re: Extension of Time
Closure Investigation Report
Refined Metals Corporation
Beech Grove, Indiana
IND 000718130

The Indiana Department of Environmental Management (IDEM) acknowledges receipt of a letter dated February 7, 2002, requesting an extension of time until April 13, 2002 to respond to comments contained in IDEM's December 20, 2001 letter. As requested, IDEM hereby grants an extension of time for a response until April 13, 2002.

If you have any questions or concerns, or would like to schedule a meeting with IDEM representatives, please contact Ms. Rebecca Eifert Joniskan at (317) 232-3404.

Sincerely,

Victor P. Windle

Victor P. Windle, Chief
Hazardous Waste Permit Section
Permits Branch
Office of Land Quality

cc: Mr. Paul G. Stratman, P.E., Project Manager, Advanced Geoservices Corporation
Mr. Jonathan Adenuga, U.S. EPA, Region 5 ✓
File: IC1c, Marion County

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VIA CERTIFIED MAIL Z 376 737 590

February 9, 2000

Mr. Matthew A. Love
Manager, Regulatory Affairs
Exide Corporation
P.O. Box 14205
Reading, Pennsylvania 19612-4205

Dear Mr. Love:

Re: Closure Plan Approval
Refined Metals Corporation
Beech Grove, Indiana
IND 000718130

The total closure plan dated October 12, 1998, and revised on March 9, 1999 and July 17, 1999, for Refined Metals Corporation (RMC) located in Beech Grove, Indiana, has been approved with the enclosed modifications.

A public notice of the closure plan was published in the *Indianapolis Star*. The public comment period began on the date of publication, August 6, 1999, and ended on September 5, 1999. No comments were received.

As detailed in Compliance Requirement 37 of the Consent Decree in Civil Action Number IP902077C, within ten (10) days of receipt of IDEM's approval of the Closure Plan, RMC shall implement the Closure Plan in accordance with the schedule contained therein. According to Compliance Requirement 38 of the above-referenced Consent Decree, within sixty (60) days of completion of closure of all waste piles and the surface impoundment, the owner or operator must submit to the Commissioner certification in accordance with 40 CFR 270.11(d), 40 CFR 265.115, and 329 IAC 3.1-10-1, both by the owner or operator and by an independent registered professional engineer, that the facility has been closed in accordance with the specifications in the approved closure plan. The response must indicate the facility's desired future status. Mail your response and certification to:

Mr. Victor P. Windle, Chief
Hazardous Waste Permit Section
Permits Branch
Office of Land Quality
Department of Environmental Management

100 North Senate Avenue
P.O. Box 6015
Indianapolis, Indiana 46206-6015

If you wish to challenge this decision, IC 13-15-6-1 and IC 4-21.5-3-7 require that you file a Petition for Administrative Review. The Petition may result in the scheduling of an administrative hearing. If you seek to have the effectiveness of the closure plan stayed during administrative review, you must also file a Petition for Stay. The petition(s) must be submitted to the Office of Environmental Adjudication at the address below within fifteen (15) days after your receipt of this notice. The petition(s) must include facts demonstrating that you are either the applicant, a person aggrieved or adversely affected by the decision, or otherwise entitled to review by law. Additionally, IC 13-15-6-2 requires that a petition for administrative review must:

1. State the name and address of the person making the request;

2. Identify the interest of the person making the request;

3. Identify any persons represented by the person making the request;

4. State the reasons, with particularity, for the request;

5. State the issues, with particularity, proposed for consideration at the hearing; and

6. Identify the terms of the closure plan which, in the judgment of the person making the request, would be appropriate in the case in question to satisfy the requirements of the law governing licenses of the type granted or denied by the Commissioner.

Pursuant to IC 4-21.5-3-1(f), any document serving as a petition for review or review and stay must be filed with the Office of Environmental Adjudication. Filing of such a document is complete on the earliest of the following dates:

1. The date on which the petition is delivered to the Office of Environmental Adjudication, ISTA Building, Suite 618, 150 W. Market Street, Indianapolis, Indiana 46204;

2. The date of the postmark on the envelope containing the petition, if the petition is mailed by United States mail; or

3. The date on which the petition is deposited with a private carrier, as shown by a receipt issued by the carrier, if the petition is sent by private carrier.

If you have any procedural or scheduling questions regarding your petition(s), you may contact OEA at 317/232-8591.

If you have any questions regarding this matter, please call (800) 451-6027, press 0, and ask for Ms. Rebecca Eifert Joniskan at extension 2-3404, or call 317/232-3404.

Sincerely,

Thomas E. Linson, Chief
Permits Branch
Office of Land Quality

Enclosure

cc: Ms. Harriet Croke, U.S. EPA, Region 5 (with enclosure) ✓
Marion County Health Department (with enclosure)
Mr. Jeff Stevens, IDEM, OLQ
Ms. Rosemary Cantwell, IDEM, OLQ (with enclosure)
Mr. Richard Milton, IDEM, OE (with enclosure)
Mr. Craig Barker, IDEM, OLQ (with enclosure)
Mr. Harold Templin, IDEM, OLQ (with enclosure)

Modifications to Closure Plan
dated October 12, 1998, and revised March 9, 1999 and July 17, 1999
Refined Metals Corporation
Beech Grove, Indiana
IND 000718130

Section 9.0, Cleanup Levels

1. Soil clean-up levels will be one of the following: background levels (inorganics), Risk Integrated System of Closures (RISC) Tier 1 Residential cleanup levels, or alternate cleanup levels as established through site-specific risk assessment approved by IDEM. Until such time as RMC establishes alternate cleanup levels, either background or RISC Tier I residential cleanup levels shall be used for all phases of this project including any determination of extent of contamination.

Section 11.5.3, Groundwater

2. As detailed in Compliance Requirement 37 of the Consent Decree in Civil Action Number IP902077C, RMC must comply with the requirements of 40 CFR 265, Subpart F. Regulations cited in 40 CFR 265.90(a), state that the owner or operator of a surface impoundment, landfill, or land treatment facility which is used to manage hazardous waste must implement a ground water monitoring program capable of determining the facility's impact on the ground water in the uppermost aquifer underlying the facility.

   a. RMC must construct a monitoring program (including any waiver of the rules) to meet the requirements of 40 CFR 265, Subpart F.

   b. The closure plan for RMC must reference this program along with a description of other soils (including ground water) sampling needed for determining extent of decontamination necessary to satisfy the closure performance standard.

3. Any 40 CFR 265 Subpart F demonstration that is done is self-implementing, and therefore not subject to approval by IDEM prior to the facility executing the waiver, however, it is subject to review at any time. The facility must keep a written copy of the demonstration at the site and it is RMC's responsibility to review it to be assured that there has been no change in the points for which the demonstration was adequate. If a demonstration is made, RMC must submit a written copy of the demonstration for the waiver of low potential for migration to IDEM for evaluation of compliance with the requirements of 40 CFR 265, Subpart F.

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VIA CERTIFIED MAIL Z 376 730 364 June 17, 1999

Mr. Matthew A. Love
Manager, Regulatory Affairs
Exide Corporation
P.O. Box 14205
Reading, Pennsylvania 19612-4205

Dear Mr. Love:

Re: Notice of Deficiency
Closure Plan
Refined Metals Corporation
Beech Grove, Indiana
IND 000718130

The Indiana Department of Environmental Management (IDEM) has reviewed the revised closure plan for Refined Metals Corporation dated March 9, 1999, which was submitted in response to IDEM's February 9, 1999 notice of deficiency (NOD). The closure plan has been determined to be inadequate pursuant to 329 IAC 3.1.

The enclosed NOD outlines the specific deficiencies and provides discussion relevant to the revision. The information requested by the NOD must be submitted, in full, as a revised closure plan. Please submit only those portions of the closure plan which have been modified with respect to the enclosed comments. This is required before the closure plan may be considered technically adequate.

As required by Compliance Requirement 37 of the Consent Decree in Civil Action Number IP902077C, the revised closure plan must be received by this office within thirty (30) days of receipt of this notice. Each page of the submission must be uniquely numbered and must have the date of the submission. If the revised plan is inadequate, this office may modify your plan in accordance with 40 CFR 265.112(d)(4).

Please submit six (6) copies of the revised closure plan to the IDEM at the above address. A certification statement identical to the one stated in 40 CFR 270.11 must accompany all submissions.

If you have any questions regarding this matter, please contact Ms. Becky Eifert, at 317/232-3404.

Sincerely,

Victor P. Windle, Chief
Hazardous Waste Permit Section
Hazardous Waste Facilities Branch
Solid and Hazardous Waste Management

Enclosure

RME

cc: Mr. Hak Cho, U.S. EPA, Region 5 ✓
Mr. Richard Milton, OE, IDEM
Mr. Craig Barker, OSHWM, IDEM
Mr. Doug Griffin, OSHWM, IDEM
Ms. Cheryl Frischkorn, OSHWM, IDEM
File: IC1a, Marion County

Notice of Deficiency
Closure Plan
Refined Metals Corporation
Beech Grove, Indiana
IND 000718130

1. Incorporate closure activities detailed in Appendix D, Closure and Post-Closure Estimates, into the text of the closure plan. The closure activities detailed in the closure plan must be definitive. It is unacceptable to have statements like the following one in the closure plan: "The currently anticipated approach for decontamination is included as part of the detailed Closure Cost Estimate for Designated Hazardous Waste Management units presented as Appendix D. Minor revisions to the procedures such as deletion of the plan to utilize the original facility baghouses, to optimize scheduled and minimize cost without changing overall approach or intent are still possible."

Section 1.1, General Site Description

2. The second paragraph of this section states that the location of the three Solid Waste Management Units are indicated on Figure 1-3. The units are not indicated on that figure. Please correct this discrepancy.

Section 8.0 Decontamination of Tanks, Equipment, and Structures

3. Indicate the exact constituents of concern for the decontamination of the outdoor waste pile surface areas, the indoor waste pile surface areas, and the lagoon. The facility has proposed to analyze soils and/or sediments in these areas for all eight RCRA metals plus antimony. Will the rinsates be analyzed for these same parameters or just lead, cadmium, and antimony?

4. Waste waters generated through the decontamination of the hazardous waste management units may be treated in the on-site waste water treatment plant and discharged to the local POTW <u>if and only if</u> the discharge is in compliance with the facility's NPDES permit. Section 9.0 should also reflect this change.

Section 9.0 Cleanup Levels

5. Tier 1 Default Closure Levels are not appropriate for sites with contaminant source areas larger than 0.5 acre. Sites larger than the default area require a Tier 3 risk assessment to determine a closure level. This may be as simple as substituting site specific variables into the same equations used in the default calculations. For example, substituting a smaller dilution and attenuation factor (DAF) in the soil to ground water partitioning model equation. (See comment #14 in the February 9, 1999 Notice of Deficiency (NOD) and Equation 8-1 in the Risk Integrated System of Closure (RISC) Technical Guidance Manual, dated

February 18, 1999). A second option is substituting a calculated dilution factor for the DAF (see equation 8–2 in the Technical Guidance Manual). A third option is proposing other equations, models, or assumptions for calculating the closure levels.

Section 10.0 Nature and Extent

6. Include the following definitions of extent in this section (or Section 11.0). Horizontal extent is defined by borings in every lateral direction away from a contaminated boring that meet the Tier 1 residential values at all intervals. Vertical extent for metals is defined by two consecutive intervals that meet background values. Background values are determined by the mean plus two standard deviations from a minimum of four borings. Background borings must be in area unaffected by past hazardous waste operations or by operations of the facility. Samples may be taken in either the same soil horizon(s) or at the same intervals as the investigative samples. Further details are provided in the RISC Technical Guidance Manual.

Section 11.0 Sample and Analysis Program

7. Remove references to subdividing areas into subareas less than 0.5 acre to allow comparison to Tier 1 closure levels in both Section 11.2 and 11.3.2. It is the entire source area that must be compared to closure levels.

8. Provide procedures for measuring soil pH in the field. Field pH usually refers to ground water pH measurements. The February 9, 1999 NOD recommended SW-846 Method 9045C for determining soil pH. This method would usually be performed in a laboratory due to measurement and time requirements.

9. Soil samples are discrete grab samples from each interval of a boring. The intervals should not be composited for the random or directed screening sampling. Remove references to compositing soil samples in both Section 11.2 and 11.3.2.

10. Sediment samples from the lagoon should be discrete grab samples from intervals. The intervals should be the same as those for soil, depending on the depth of the sediment. There should be a minimum of four samples, one from each boring location, instead of one composite sample for the lagoon.

11. Data deliverables are detailed in the RISC Users Guide, Attachment 9. Minimum requirements are initial calibration results, continuing calibration verification results, blank results including initial and continuing blanks, matrix spike and matrix spike duplicate recoveries, interference check sample results, and laboratory control sample results. See the February 9, 1999 NOD comment # 16. For SW-846 Method 6020, mass spectrometer tuning results and internal standard intensities are also required.

12. The 95% upper confidence limit (UCL) must be calculated using all results greater than background for each particular metal.

13. One of the data quality objectives of a project is that quantitation limits must be equal or less than the cleanup levels. The quantitation limit reported in Table 11-2 for method 6020 for antimony in an aqueous matrix is 10 µg/l. The Tier 1 Closure Levels and the MCLs for antimony is 6 µg/l. Either ensure that method 6020 can reach the necessary quantitation level or select another method that has an appropriate quantitation level.

Section 11.4, Lined Lagoon

14. Refined Metals has not established an adequate 40 CFR 265, Subpart F ground water monitoring program at the facility. Item 37 of the Consent Decree states that the facility shall submit for approval a closure plan for all waste units which meets the requirements of 40 CFR 265, Subparts F and G. Regulations cited in 40 CFR 265.90(a), state that the owner or operator of a surface impoundment, landfill, or land treatment facility which is used to manage hazardous waste must implement a ground water monitoring program capable of determining the facility's impact on the quality of ground water in the uppermost aquifer underlying the facility. In section 10.2.4. of the Closure Plan (Version 2.0), the facility states that a separate ground water investigation work plan for the SWMUs will be developed in the future, if necessary. This is not acceptable to the IDEM. Refined Metals Corporation must submit to the IDEM a ground water monitoring plan that meets the requirements of 40 CFR 265 Subpart F. The plan must include, but not be limited to:

    a. at least one (1) monitoring well that is installed hydraulically upgradient of the surface impoundment and not affected by the facility {265.91(a)(1)};

    b. at least three (3) monitoring wells installed hydraulically downgradient of the surface impoundment at the limit of the waste management area {265.91(a)(2)};

    c. procedures and techniques to obtain and analyze samples from the installed ground water monitoring system and procedures to obtain ground water level measurements (265.92);

    d. procedures to establish background concentrations for the parameters in 265.92(b)(3);

    e. specific procedures to statistically compare background concentrations of the indicator parameters to concentrations detected downgradient of the regulated unit (265.93);

    f. a ground water assessment outline {265.93(a)}; and

g. specific procedures for record keeping and submitting annual reports (265.94).

Refined Metals must explain why the information in Section 10.2.4 was included in the Closure Plan. If the facility feels that data collected for the RCRA Facility Investigation (RFI) can be used for closure requirements, then the facility must present all the pertinent information in the Closure Plan and explain how the data meets the requirements of 40 CFR 265, Subpart G. If the facility does not plan on utilizing the RFI ground water data, then remove section 10.2.4 of the Closure Plan. In addition, Refined Metals must revise the Closure Plan to state that a 40 CFR 265, Subpart F ground water monitoring program will be followed until closure is complete. The Closure Plan must reference the ground water monitoring plan that will be used to fulfill the requirements of 40 CFR 265, Subpart F.

For proper RCRA monitoring well construction details, sampling and analysis requirements, and general QA/QC guidance, refer to the RCRA Ground Water Monitoring Technical Enforcement Guidance Document, September 1986.

Appendix D, Closure and Post-Closure Estimates

15. Only the basic assumptions upon which the closure cost estimate is based should be included in the closure cost estimate. Detailed descriptions of closure activities should not be included in the estimate. Revise the closure cost estimate accordingly. Also, please revise the closure cost estimate so that it is representative of closure activities as described in the text of the closure plan; there are significant differences between closure activities proposed in the text of the closure plan and those proposed in the closure cost estimate document.

16. Update the costs in the closure cost estimate to 1999 dollars.

Section 3.1, Closure and Corrective Action

17. Include costs for media sampling to demonstrate "clean closure" for the designated HWMUs in the closure cost estimate. Not incorporating them because the activities will be performed under the auspices of Corrective Action is not acceptable because the closure cost estimate must reflect the costs that would be incurred by a third party in a worst case scenario.

Table 3, Estimated Costs for Closure of Surface Impoundment

18. Incorporate the costs that will be incurred in order to establish and conduct an adequate ground water monitoring program as required by the Consent Decree and detailed at 40 CFR 265, Subpart F.

Table 4, Estimated Costs for Closure of Inside Waste Piles

19. Incorporate the costs that will be incurred through the performance of sampling and analysis activities as described in Section 11.3, Indoor Waste Piles, of the closure plan.

Table 5, Estimated Closure Costs for Outside Waste Piles

20. Incorporate the costs that will be incurred through the performance of sampling and analysis activities as described in Section 11.2, Outdoor Waste Piles, of the closure plan.

Appendix E, Financial Insurance / Assurance

21. Please submit the original bond and updated or current insurance certificate.

22. Please adjust the value of the financial instrument used for financial assurance so that coverage is adequate as detailed in the closure cost estimate.

DE-9J

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VIA CERTIFIED MAIL P 126 003 938

February 9, 1999

Mr. Matthew A. Love
Manager, Regulatory Affairs
Exide Corporation
P.O. Box 14205
Reading, Pennsylvania 19612-4205

Dear Mr. Love:

Re: Notice of Deficiency
Closure Plan
Refined Metals Corporation
Beech Grove, Indiana
IND 000718130

The Indiana Department of Environmental Management (IDEM) has reviewed the closure plan for Refined Metals Corporation dated October 12, 1998, which was submitted as required by Compliance Requirement 37 of the Consent Decree in Civil Action Number IP902077C. The closure plan has been determined to be inadequate pursuant to 329 IAC 3.1.

The enclosed Notice of Deficiency (NOD) outlines the specific deficiencies and provides discussion relevant to the revision. The information requested by the NOD must be submitted, in full, as a revised closure plan. Please submit only those portions of the closure plan which have been modified with respect to the enclosed comments. This is required before the closure plan may be considered technically adequate.

As required by Compliance Requirement 37 referenced above, the revised closure plan must be received by this office within thirty (30) days of receipt of this notice. Each page of the submission must be uniquely numbered and must have the date of the submission. If the revised plan is inadequate, this office may modify your plan in accordance with 40 CFR 265.112(d)(4).

Please submit six (6) copies of the revised closure plan to the IDEM at the above address. A certification statement identical to the one stated in 40 CFR 270.11 must accompany all submissions.

If you have any questions regarding this matter, please contact Ms. Becky Eifert, at 317/232-3404.

Sincerely,

Victor P. Windle

Victor P. Windle, Chief
Hazardous Waste Permit Section
Hazardous Waste Facilities Branch
Solid and Hazardous Waste Management

Enclosure

RME

cc: ~~Mr. Hak Cho, U.S. EPA, Region 5~~ ✓ (Lorna Jereza DE-9J)
Mr. Richard Milton, OE, IDEM
Mr. Craig Barker, OSHWM, IDEM
Mr. Doug Griffin, OSHWM, IDEM
File: IC1a, Marion County

Notice of Deficiency
Closure Plan
Refined Metals Corporation
Beech Grove, Indiana
IND 000718130

Section 2.1, Facility Description

1. Include a United States Department of Agriculture Soil Conservation Service Soils Survey Map of the Refined Metals facility and the surrounding area.

Section 5.0, Air Emissions

2. Appendix D, Closure and Post-Closure Estimates, Section 3.4, Inside Waste Piles, Item 3, refers to an "air registration permit secured for operation." Please provide a discussion of the air registration permit in the Air Emissions section.

Section 8.0 Decontamination of Tanks, Equipment and Structures

3. The references to a "conceptual plan for decontamination" are unacceptable. Please submit a detailed plan addressing the decontamination of all hazardous waste management units.

4. Perform a visual inspection of each of the hazardous waste management units prior to decontamination and document the findings of the inspections.

5. Include a statement that the final rinsate will be analyzed for the constituents of concern to demonstrate each area has been decontaminated.

6. Please state that all wastes generated from the decontamination of the hazardous waste management units (rinsates, concrete, dusts, etc.) will be managed as hazardous wastes until waste characterization analyses demonstrate that the wastes are not hazardous. Also state that hazardous wastes will either be appropriately treated or disposed or will be directed to an acceptable recycling facility.

7. State that the soil will be sampled in accordance with Section 11, Proposed Sampling and Analysis Program, and the soils will be remediated as necessary based on the results of the Sampling and Analysis Program.

Section 8.2, Indoor Waste Piles (Material Storage Building)

8. State that all cracks and expansion joints will be sealed prior to any washing of the floor.

Section 9.0, Cleanup Levels.

9. Indicate that the Tier 1 cleanup goals which are being utilized for this closure plan can be found in the draft Risk-Integrated System of Closures Technical Manual to be published by IDEM on February 18, 1999.

10. Indicate that the results of soil and sediment sampling performed as described in Section 11, Proposed Sampling and Analysis Program, will be compared to the IDEM Tier 1 cleanup goals.

11. Provide a rationale as to why antimony is not included as a hazardous constituent of concern which may be present and migrate from the site. Section 2.3.2 states that antimony was used in the refining process. Antimony is a hazardous constituent listed in 40 CFR Part 261 Appendix VIII.

12. Include soil pH as a parameter since lead acid batteries were originally stored on open bare soil. SW-846 Method 9045C may be used. The amount of a metal that may leach to ground water is dependent on soil pH. The soil to groundwater partition coefficient, K_d, is lower with lower pH. The K_d is used in the formula to calculate the subsoil values. If the pH values are lower than the default assumptions (pH = 6.8), a higher tier risk assessment, at least a Tier 2, must be performed. There is no cleanup value for soil pH, nor may the soil pH be adjusted to achieve a higher K_d. Adjusting soil pH can not be considered a permanent remedy.

13. The clean closure cleanup levels for soil will be residential subsurface values. Surface values are based on direct exposure while subsurface values are based on the potential to leach to ground water. An elevated value in the surface soil may meet the surface value but still have an unacceptable risk to leach to ground water. Therefore, the entire soil column must be evaluated.

14. Tier 1 subsurface default table values are calculated on a maximum area of 0.5 acre. It is not appropriate to divide a larger area into 0.5 acre areas for the purpose of determining the contribution to ground water contamination. It is the entire source area that could contribute to the ground water. The calculations of the Tier 1 subsurface table values include a dilution and attenuation factor. Different size areas have different dilution and attenuation factors because the possible contribution to an aquifer is dependent on the size of the source area. The dilution and attenuation factor for areas larger than 0.5 acre is half that for 0.5 acre. Therefore, the cleanup levels for larger areas are 50% of the table values for 0.5 acre. The "Migration to Ground Water Model" paper in Appendix 3 of the Draft Risk Integrated System of Cleanups (RISC) Manual, dated October 21, 1997, contains details and references to the calculation of dilution and attenuation factors.

15. The division of the entire area into 0.5 acre areas for determining sampling locations is acceptable. Each 0.5 acre area is sampled with equal number of samples. However, if the

facility wishes, new sampling locations may be chosen for the storage areas and material storage building. The lagoon sediments should be sampled separately.

16. The IDEM has developed draft Tier 1 values for lead. The value for residential subsurface is 81 mg/kg. Therefore, the cleanup level for lead (using the default value for pH = 6.8) will be 41 mg/kg. The residential ground water value is 0.015 mg/l.

17. Include a statement of how analytical results will be evaluated against the cleanup level. For example, all intervals must be below cleanup levels or the upper confidence limit (UCL) must be below the cleanup levels.

Section 10.0, Nature and Extent of Known Contamination

18. The use of field instrumentation is acceptable and useful to screen an area to determine the presence of contamination. However, field screening (x-ray fluorescence) may not be used to determine the absence of contamination or to verify the extent of contamination. Verification of extent is established with laboratory analytical results.

19. Determination of extent of contamination is necessary when an area exceeds the cleanup level. The determination is necessary either for remediation or for a higher tier risk assessment. Since the field screening results show extremely high amounts of lead and the area is unlikely to be under the cleanup levels, the facility may proceed to the determination of extent during the initial soil sampling event under this plan.

20. Include in this section the following definitions of extent. Horizontal extent is defined by borings in every lateral direction away from a contaminated boring that meet the Tier 1 residential values at all intervals. Vertical extent is defined by two consecutive borings that meet background values. Background values are determined by the mean plus two standard deviations from a minimum of four borings. Background borings must be in area unaffected by past hazardous waste operations or by operations of the facility. Samples may be taken in either the same soil horizon(s) or at the same intervals as the investigative samples. Further details are provided in the IDEM Hazardous Waste Management Unit Closure Guidance, April 1997. Note however that the IDEM is now requiring the mean plus two standard deviations, not three as listed in the guidance document.

Section 11.0, Proposed Sampling and Analysis Program

21. Indicate that if the results of the Sampling and Analysis Program show that there is soil and/or groundwater contamination above the cleanup levels, a plan will be submitted addressing the remediation of the contaminated media.

22. Change Sections 11.1 and 11.2.2 of this section, and Section 4.2.1 of the Quality Assurance Project Plan (QAPP), to reflect that soil samples are not composited between intervals. Each interval must be analyzed separately.

23. Include procedures to sample beneath pavement or the concrete floors. Surface samples under the pavement should be taken as close to the original soil surface as possible.

24. Indicate how the results of the directed sampling will be evaluated against the cleanup levels. Will they be included with the random samples or evaluated separately?

Section 11.1, Outdoor Waste Piles

25. Include four directed soil samples adjacent to the walls of the Battery Breaker Building, one outside of each wall.

Section 11.2.1, Floor Dust Sampling

26. The purpose of collecting samples of the floor dust is for waste characterization purposes only. Therefore, the sample locations do not need to be specified in the closure plan, and only the analyses necessary to characterize the wastes need to be performed.

Section 11.3, Lined Lagoon

27. Indicate that the soil beneath the concrete and geomembrane liner will be sampled prior to the completion of closure activities at the lagoon. Section 4.3 states the lagoon was originally earthen lined. Closure of surface impoundments requires removal of waste and liners and removal of materials contaminated with the waste. It is not clear when the concrete liner of the impoundment was installed or if the condition is adequate to prevent leaking into the soil below.

28. Compliance Requirement 37 of the Consent Decree in Civil Action Number IP902077C requires that a closure plan be submitted "for all the waste piles and the surface impoundment which meets the requirements of 40 CFR 265, Subparts F and G...." As specified in 40 CFR 265, Subpart F, please submit a proposed groundwater monitoring program plan for the surface impoundment.

Section 11.5, Analytical Requirements.

29. This section should include analytical methods, quantitation limits, and the data deliverables instead of just referencing the QAPP. Data deliverables are detailed in the Hazardous Waste Program Analytical Data Deliverable Requirements for RCRA Closures, Risk Assessments, and Remediation Projects, March 1997. Minimum requirements are initial calibration results, continuing calibration verification results, blank results including initial and continuing calibration blanks, matrix spike and matrix spike duplicate recoveries, interference check sample results, and laboratory control sample results.

30. The QAPP lists SW-846 Method 6020, an inductively coupled plasma-mass spectra method (ICP-MS), for analysis of aqueous samples and Method 6010B, an ICP method,

for soil samples. Both methods are acceptable for either matrices provided quantitation limits appropriate for the project are met. However, method 6020 may not be widely available. List both methods as alternatives. Other methods (trace ICP or 7000 series) are also available as alternative methods with lower quantitation limits.

Appendix D, Closure and Post-Closure Estimates

31. Include analytical costs for all soil samples for each type of unit, i.e., material storage building, outdoor waste pile areas, and the surface impoundment. The closure cost estimate was based on the original corrective action RCRA Facility Investigation, not the sample requirements of the closure plan.

32. Update the costs in the closure cost estimate to 1999 dollars.